

WHAT IS CLAIMED IS:

1. An airbreathing fuel cell comprising end plates, a unit cell disposed between the two end plates, a fuel distribution manifold disposed centrally of the unit cell to supply a fuel thereto, a single tie bolt extending centrally of the fuel distribution manifold and of the unit cell to unite these elements, fixing nuts screwed onto both ends of the tie bolt to integrally clamp the unit cell between the end plates with O-rings or the like therebetween, and a cell stack formed by stacking a plurality of those unit cells, which comprise a solid polymer electrolyte membrane, an oxygen electrode and a fuel electrode, which are provided on both sides of the solid polymer electrolyte membrane to be opposed to each other, an oxygen passage plate provided adjacent and toward the oxygen electrode, and separator plates provided adjacent and outside the oxygen passage plate and the fuel electrode, and wherein the oxygen passage plate comprises a plurality of opened grooves on a surface thereof opposed to the oxygen electrode, and the grooves are opened outside at both ends thereof.

2. The airbreathing fuel cell according to claim 1, wherein blowers for blasting an air into the grooves formed on the oxygen passage plates are provided on the fuel cell to face the grooves..

3. The airbreathing fuel cell according to claim 2, wherein the blowers are arranged in opposition to

the both opened ends of the grooves on the oxygen passage plates of the cell stack to blast an air whereby an air can be supplied centrally of the oxygen passage plates from the both ends of the grooves.

4.           The airbreathing fuel cell according to claim 3, wherein the blowers for the cell stack are provided at least one by one on sides of the both opened ends of the grooves of the oxygen passage plates and on respective sides in parallel to the grooves, and the blowers provided on the opposed sides are provided in opposition to each other respectively to blast an air to the oxygen passage plates.

5.           The airbreathing fuel cell according to any one of claims 1 to 4, wherein an outer peripheral surface of the cell stack is rectangular in shape.